

15872.018 Sequence Listing (23.8.2006).ST25.txt
SEQUENCE LISTING

<110> State of Israel, Ministry of Agriculture, Agricultural Research
Organization, The Volcani center,

Gal-On, Amit
Zelcer, Aaron
Wolf, Dalia
Gaba, Victor P
Antignus, Yehezkel

<120> ENGRAFTED PLANTS RESISTANT TO VIRAL DISEASES AND METHODS OF
PRODUCING SAME

<130> KIDUM/010/PCT

<160> 21

<170> PatentIn version 3.3

<210> 1

<211> 1461

<212> DNA

<213> Cucumber fruit mottle mosaic virus

<400> 1

tcgaaggcgg gtttttggac ggatatgcaa aatttttatg acgcttgtct gcccgggaat	60
agttttgtgt tgaatgatta cgattctgtg actatgcggc tggttgataa tgagattaat	120
ctgcaacctt gtaggttaac tctatctaaa gccgatcccg ttacagagtc tctgaagatg	180
gagaaaaagg agtttttgat cccgcttggg aaaactgcta cggagcgtcc gcggatccct	240
gggcttttag aaaatttgat agctatagtt aagaggaatt ttaatacacc ggatttagcc	300
gggagtttag atatttctag tattagtaag ggtgtagtag ataacttctt ttccactttt	360
ttgcgtgacg agcaattggc ggatcacctt tgtaaagtta ggtctcttag tctagagtct	420
ttttccgcat ggtttgataa tcaatcaact tgtgctctgg gtcagttgtc taatttcgat	480
tttgtggatc tgctcccgt tgatgtttat aatcatatga ttaagaggca acccaaatcg	540
aagttagaca cctcgattca gtctgagtat cccgcgttgc aaacgattgt ttatcatagt	600
aaattagtga atgcggtttt tgggtcccgtt ttccgttatc ttacttccga gtttttatct	660
atggtagata atagtaaatt tttcttttat actagaaaac tccggatgat ttgcaagttt	720
cttttcccac actttcccaa taagcaggag tatgagattc tagagctaga tgtttccaaa	780
tatgataaat cacagaatga ttttcatcag gctgtggaga tgcttatttg ggaacgttta	840
ggtctagatg atattcttgc taggatttgg gaaatggggc ataagaagac gcatatcagt	900
gatttccaag ctgggattaa aactcttatt tattatcagc ggaaatctgg agatgttact	960
acttttatag gtaatacttt tattatagct gcttgtgtcg cttctatggg tccgctgagt	1020
cggagtttca aagctgcctt ttgtggtgat gattcactga tctatatgcc accgaatctg	1080
gaatataatg acatacagtc gaccgcgaat ctcgtgtgga atttcgaggc taaactgtat	1140

15872.018 Sequence Listing (23.8.2006).ST25.txt

aagaagaaat atggttat	ctgtggcaaa tatgtgatcc atcatg	cgaa tgggtgtatt	1200
gtttatccgg atccgttgaa	gctaatttct aaattaggca ataagagtct	ggaaagttac	1260
gatcatttgg aggaatttag	gatttctctg atggacgtag ctaaaccttt	gttcaatgct	1320
gcttattttc atcttttaga	tgatgctatc cacgagtatt ttcctagtgt	tgggggtagc	1380
acgtttgcta ttagttcttt	gtgcaagtat cttagtaata agcagttggt	tgggtctcta	1440
ttcattaagc ctagtgtcta	g		1461

<210> 2
 <211> 1050
 <212> DNA
 <213> Zucchini yellow mosaic virus

<400> 2		
tcaggcactc agccaactgt	ggcagacact ggagccacaa agaaagacaa	agaagatgac 60
aaagggaaaa acaaggatgt	tacaggctcc ggctcaagtg agaaaacagt	ggcagctgtc 120
acgaaggaca aggatgtaaa	tgctggttct catgggaaaa ttgtgccgcg	tctttcgaag 180
ataacaaaga agatgtcact	gccacgcgtg aaaggaaatg tgatactcga	cattgatcac 240
ttgctggagt ataagccgga	tcaaattgag ttatacaaca cacgagcgtc	tcatcagcaa 300
ttcgccctctt ggttcaacca	agttaaaaca gaatatgata tgaatgagca	acagatggga 360
gttgtaatga atggtttcat	ggtttggtgc atcgaaaatg gcacgtcacc	cgacattaac 420
ggagtatggg ttatgatgga	cggtaatcag caggttgaat atcctttgaa	accaatagtt 480
gaaaatgcaa agccaacgct	gcgacaaata atgcatcact tttcagatgc	agcggaggca 540
tatatagaga tgagaaatgc	agaggcacca tacatgccga ggtatggttt	gcttcgaaac 600
ttacgggata ggagtttggc	acgatatgct ttcgacttct acgaagtcaa	ttccaaaact 660
ccggaaagag cccgcgaagc	tgttgcgcag atgaaagcag cagcccttag	caatgtttct 720
tcaaggttgt ttggccttga	tggaaatggt gccaccacta gcgaagacac	tgaacggcac 780
actgcacgtg atgttaatag	gaacatgcac accttgctag gtgtgaatac	aatgcagtaa 840
agggtaggtc gcctacctag	gttatcgttt cgctccgacg taattctaata	atttaccgct 900
ttatgtgatg tctttacatt	tctagagtgg gcctcccacc tttaaagcgt	aaagtattatg 960
ttagttgtcc aggagtgccg	tagtcctgtc ggaagcttta gtgtgagcct	ctcacgaata 1020
agctcgagat tagactccgt	ttgcaagcct	1050

<210> 3
 <211> 190
 <212> DNA
 <213> Ricinus communis

<400> 3

15872.018 Sequence Listing (23.8.2006).ST25.txt

```

gtaaatttct agtttttctc cttcattttc ttggtttagga cccttttctc tttttatttt 60
tttgagcttt gatctttctt taaactgatc tatttttttaa ttgattgggt atgggtgtaaa 120
tattacatag ctttaactga taatctgatt actttatttc gtgtgtctat gatgatgatg 180
atagttacag 190

```

```

<210> 4
<211> 6562
<212> DNA
<213> Cucumber fruit mottle mosaic virus

```

```

<400> 4
gataaaagtt ttttacattg aacaaaaaca atatacatta cttttataac aatacacaaat 60
acatggcaaa cattacacaa catatcaatg ataccaggga ggctgcggcc gccgggcgta 120
atccgctcgt ggcgcagctg gcttcgaaga gggtttatga tgaggctgtc aagtctcttg 180
attctcaaga taaacgccct aaggtgaatt ttgctcgggt attgaccaca gagcagacga 240
ggaagggtcac ggagtcgtat ccggagtttt cgatcagtta tactgcatcg gccttatctg 300
tgcatagttt ggcgggggga ctgcatatt tagaagggtga gtacctgatg atgcagggttc 360
cctatgggtc gcccggtgat gatatcggag ggaattactc gcaacatatg ctgaagggga 420
gagcatacgt acattgttgc aatccgtgcc tggacctgaa ggacattgca cgcaatgaga 480
tgtacaagga tgccattgac cgttatgtgc ataagaaacg cgaagcgcca cgttctaattg 540
cttgaggggc tagggcagag tccgtccaag aaattaaaga cggccgtcta ccttcattggc 600
agatcgatgc gtttcagcga tataaggatt gtccaagagc ggtcacctgt aatgatgtgt 660
tccaagagtg tcagtatgaa catacgagga gaggggatcg ttatgcagtt gctctgcatt 720
cgatttatga tattcctttc gaacagatag gacctgcgct cttgcggaag aatattaagg 780
ttctcttcgc cgcattccat ttctcagagg agttgctgtt ggggcaaagt tttgggtgcct 840
tgcctaatat aggtgcgttc tttaccgtca atggtgattc cgtcgagttt cagttcgaag 900
aagaatctac tttgcattat tcacatagtt tccagaatat taggaagata gtaactagga 960
cgtattttcc tgcttcagat agggtagttt atgtaaagga gtttatgggt aagcgtgtag 1020
atactttctt tttccgtatg gttagggttg ataccatat gttacataag tcagtaggta 1080
cgtatcctgt ttgtgcgact aactatttct ctctcaagtc atcaccaata ttccaggata 1140
aagccacgtt ctctgtgtgg tttcccaaag ctaaattctaa ggtgggtgata cctatcttta 1200
agatgcaagg gtttttcaact gggctctattg tggcagagaa gatgatgatc gatgctagct 1260
ttattcatac tgttatcaat catatctgta cttatgataa taaggcgta acgtggagga 1320
atgttcagtc cttcgtcgag tcaattcggg cccgggttgt cgtgaatggg gtttcgggtgc 1380
ggagtgaatg ggatgtgccg gtagagcttt taactgatat ttcgttcacc gtttttttac 1440

```

15872.018 Sequence Listing (23.8.2006).ST25.txt

tagtcaaagt	caagaagacg	cagatcgaga	ttatgagtga	taaaattgtg	acacaacctc	1500
aggggttgat	tgagcggatt	gtacagagag	tctctgaagc	tttcgaagga	tgtacagaag	1560
cgggtgcaaaa	ggcccttctt	acttccgggt	ggttcagaac	tccagcggat	gatctcgttc	1620
ttgatattcc	tgagttgttc	atggattttc	atgattatct	cagcgggtgc	ttcgaaagcc	1680
ggatgctcgt	attgaggcga	cggaccgtcg	aaaaatgttt	taagcgcttt	ccgacaagct	1740
ttattcgact	gtatcggaag	ctttgtgagc	gatattctgg	gattgaattt	gacttggagc	1800
aagtttctga	tttttgccac	caccatgacg	tgaatcctgc	tttgggtgga	cccgtgatag	1860
aggcgatttt	ttcgcagact	gccgggatta	cagtcactgg	gctgtctaca	aaatctgttg	1920
agtgggcagc	cgcagaggct	ttagcaccga	cgtctgttga	tatggattgt	gacagtgatg	1980
atgaggagct	ggagcagaaa	ttcccaaadc	tgtccaatga	ggagttgaga	tatttgcatg	2040
aggtgagatc	gaaggaagcc	gctttcttgg	agctacaaga	tacatttaaa	accaagaagg	2100
tgactgagtt	agtgtctgtg	ggagtaggag	ctttgccaac	gctaccgcgt	cagtggatag	2160
cgacagggaa	ggttcatctt	cctcagggtg	gtctgtcggg	tgggaagaat	aaacattcgg	2220
tcgagatatg	tgacgaagat	ggggtcagtg	tgaagaatct	gcatctgacg	gagacgtgta	2280
atctaagatt	gaagaagact	atcactccgg	tgatctatac	tgggcccata	agagtgcgtc	2340
agatggctaa	ttatctcgat	tatctttctg	ctaactctgg	cgctacgata	ggaattctcg	2400
aaagaattgt	tcgatcgaat	tgggtctggga	atgagggtgt	gcaaacttat	ggcttttttg	2460
attgtcaggc	taataagtgg	atcttactgc	cctctgagaa	aacacatagt	tgggggtgtct	2520
gtctgactat	ggatgataag	cttcgtgttg	tcctgctgca	gtatgattcc	gccggttggc	2580
cgattgtaga	taagtctttt	tggaaagctt	tttgtgtgtg	tgccgatact	aaagtttttt	2640
ctgttattag	gagtcttgag	gttttgtctg	ctttaccttt	agttgaaccg	gatgctaagt	2700
atgtgctgat	tgatggtgtg	cctggttgtg	ggaagacgca	agagattata	tcgagtgcgg	2760
acttcaaaac	ggatctaadc	cttacacctg	gtaaggaagc	cgcggccatg	atcaggcgta	2820
gagccaacat	gaaatatagg	agtcccgtcg	ccacaaatga	taatgtgagg	acttttgatt	2880
catttgtaat	gaataaaaag	ccctttacct	ttaagacact	atgggtggat	gaggggtctca	2940
tgggtgcatac	cggctctgtta	aatttctgtg	tgaatattgc	taaggtaaag	gaagttcgta	3000
ttttcgggtga	tactaagcaa	atccccttca	ttaatagagt	gatgaatttc	gattaccac	3060
tagagctgag	gaaaattatt	gttgatacgg	tggaaaagcg	gtacacgagt	aaacggtgtc	3120
caagggatgt	gactcattat	ttgaatgagg	tatattccag	tcccgtgtgt	actactagtc	3180
ctgtcgtaca	ttcagttact	acaaaaaaga	ttgctggagt	gggtcttttg	cgaccggaat	3240
tgacggcatt	gcctggtaag	attataactt	tcactcagaa	tgacaagcaa	acgcttttaa	3300
aagcgggtta	tgctgatgtg	aatactgtgc	atgagggtgca	gggggagaca	tatgaggaaa	3360

15872.018 Sequence Listing (23.8.2006).ST25.txt

cttccgtggt gagggctact gctacaccaa ttggtttgat ttcgcgtaag tctccgcatg	3420
tgcttggtgc tctgtcgagg cataccaagg cgatgacgta ttatactgtg actgtggatc	3480
ccgtgagctg tataattgct gatttggaga aggtcgatca aagtattctg tctatgtatg	3540
cctctgtggc ggggaccaa tagcaattac agcaactatc cgtctatgtg catttgcccg	3600
tgtcgaaggc gggtttttgg acggatatgc aaaattttta tgacgcttgt ctgcccggga	3660
atagttttgt gttgaatgat tacgattctg tgactatgcg gctggttgat aatgagatta	3720
atctgcaacc ttgtaggta actctatcta aagccgatcc cgttacagag tctctgaaga	3780
tggagaaaaa ggagtttttg atcccgttg gtaaaactgc tacggagcgt ccgcggatcc	3840
ctgggctttt agaaaatttg atagctatag ttaagaggaa ttttaataca ccggatttag	3900
ccgggagttt agatatttct agtattagta aggggtgtagt agataacttc ttttccactt	3960
ttttgcgtga cgagcaattg gcggatcacc tttgtaaagt taggtctctt agtctagagt	4020
ctttttccgc atggtttgat aatcaatcaa cttgtgctct gggtcagttg tctaatttcg	4080
attttggtga tctgcctccc gttgatgttt ataatcatat gattaagagg caacccaaat	4140
cgaagttaga cacctcgatt cagtctgagt atcccgcgtt gcaaacgatt gtttatcata	4200
gtaaattagt gaatgcggtt tttgggtccc ttttccgtta tcttacttcc gagtttttat	4260
ctatggtaga taatagtaaa tttttctttt atactagaaa actccggatg atttgcaagt	4320
ttcttttccc acactttccc aataagcagg agtatgagat tctagagcta gatgtttcca	4380
aatatgataa atcacagaat gattttcatc aggctgtgga gatgcttatt tgggaacggt	4440
taggtctaga tgatattctt gctaggattt gggaaatggg gcataagaag acgcatatca	4500
gtgatttcca agctgggatt aaaactctta tttattatca gcggaaatct ggagatgtta	4560
ctacttttat aggtaatact tttattatag ctgcttgtgt cgcttctatg gttccgctga	4620
gtcggagttt caaagctgcc ttttgtggtg atgattcact gatctatatg ccaccgaatc	4680
tggaatataa tgacatacag tcgaccgcga atctcgtgtg gaatttcgag gctaaactgt	4740
ataagaagaa atatggttat ttctgtggca aatatgtgat ccatcatgcg aatgggtgta	4800
ttgtttatcc ggatccgttg aagctaattt ctaaattagg caataagagt ctggaaagtt	4860
acgatcattt ggaggaattt aggatttctc tgatggacgt agctaaacct ttgttcaatg	4920
ctgcttattt tcatctttta gatgatgcta tccacgagta ttttcctagt gttgggggta	4980
gcacgtttgc tattagttct ttgtgcaagt atcttagtaa taagcagttg tttgggtctc	5040
tattcattaa gcctagtgtc tagatgtcca tcagtaaggc cgggtgtcagg aacgcttta	5100
agccagagga atttgtaaag attacttggg ttgataagct acttcctgat gcttttacta	5160
ttcttaagta tttatctatt acagattata gtgttggtaca gtctaaagac tatgaacatc	5220

15872.018 Sequence Listing (23.8.2006).ST25.txt

tcataacctgt ggatctacta cgtggcgtgg atttttcaaa gtctaaatat gttactttgg	5280
ttggtgttgt gatctccggg gtctggacaa ttctgagaa ttgtgccggt ggtgctaccg	5340
tggcgctggt cgatactcgg atgtccttag tgtcggaggg tactatttgt aagttttctg	5400
tatctgcagc cagtcgggat ttacggtaa aattgattcc gaattattat gtgactgctg	5460
ctgatgcctc ctccaaaccc tggctcttgt ttgttaggat ttctggtgtt aggatcaaag	5520
atggtttttc tccgttaact ctggagattg cctctttggt ggctaccacc aattctattt	5580
taaagaaggg tctaagagtt agtgtgatcg agtccgtggt agggctctgat gcctccgtgt	5640
cgttggatac cttgtctgaa aaggttcaac ccttttttga ttcggttccg attacggctt	5700
cagtggatc tcgtgatagg tcttatgtgt cttaaaggctg ccctccttct cggagtggac	5760
ctgtgtcgcg taaatctaaa agtaagagtg aggcagaatc tttttcggat agcggcgctt	5820
ctgagccact aagttcataa tcaagatgtc ttactctact tctggtttgc gttctttgcc	5880
tgcataact aagtcttttt gtccttatta tgctttgtat gatctgttgg tgtcagccca	5940
aggtggagcc ctgcaaacgc aaaatggtaa agacattttg cgtgactcca taaatggggt	6000
gttaacgaca gttgcgtctc ctaggagtcg gttccctgcg gaagggttct ttgtctggtc	6060
ccgtgagtcg cgcattgctg ctatattaga ttctctgctt tcggcgttgg attcaagaaa	6120
tagggctatt gaagttgaaa acccttctaa tccttcgacc agtgaagctt tgaatgctac	6180
taagcgcaat gacgacgcgt ctactgctgc gcacaacgac attcctcagc tgatttcagc	6240
tttgaatgac ggtgccggtg tgtttgatag agcgtctttt gagagtcagt tcggtctagt	6300
atggaccgct gcgtcgtcgt ctacctcgaa gtgaggcgtg gtcgctgcgt taagcgatag	6360
agtttttccc tcctctttaa tcgaagggtt tcccgttatg ggcgtgggtca tcacgaaaga	6420
tgatagagtt tttccctcct cttaaatacga agggattgtt tgcgcgggtt ctaccgagcc	6480
tctgctgtgt gacagtaagc tggcgtaagc aattatgggt agaggtgttc gaatcacccc	6540
ctttgccccg ggtaggggca ca	6562

<210> 5
 <211> 25
 <212> DNA
 <213> Artificial sequence

<220>
 <223> single strand DNA oligonucleotide

<400> 5
 cgctagctat cactgaaaag acagc

25

<210> 6
 <211> 26
 <212> DNA
 <213> Artificial sequence

15872.018 Sequence Listing (23.8.2006).ST25.txt

<220>
<223> single strand DNA oligonucleotide

<400> 6
ggccatgggt atgtctgaag taaacg 26

<210> 7
<211> 32
<212> DNA
<213> Artificial sequence

<220>
<223> single strand DNA oligonucleotide

<400> 7
cgccatggc atcgaaggcg gggttttgga cg 32

<210> 8
<211> 32
<212> DNA
<213> Artificial sequence

<220>
<223> single strand DNA oligonucleotide

<400> 8
gagtgacct agacactagg cttaatgaat ag 32

<210> 9
<211> 9591
<212> DNA
<213> Zucchini yellow mosaic virus

<400> 9
aaattaaaac aaatcacaaa gactacagaa atcaacgaac aagcagacga tttctaaacc 60
gtgtttacaa acaagcaatc tataattcgc acagcatcaa gaatttctgc aatcactttg 120
tttatttttag acacaacaat ggcctcagtt atgattgggt caatctccgt acctatcgca 180
caacctgctc agtatgcaaa caccgaagcg agcaaccggg ttaatatagt ggcacctggc 240
cacatggcaa catgcccacc accattgaag acgcacacat actacaggca tgagtccaag 300
aagttgatgc aatcaaaca aagcattgac attctgaaca acttcttcag cactgacgag 360
atgaagttaa ggctcactcg aaacgagatg agcaagggtga aaaaggggtcc gagtgggagg 420
atagtcctcc gcaagccgaa taagcagcgg gttttcgccc gtattgagca ggatgaggca 480
gcacgcaagg aagaggctgt tttcctcgaa ggaaattatg acgattcgat cacaaatata 540
gcacgtgttc ttccacctga agtgactcac aacgttgatg tgagcttgcg atcaccgttt 600
tacaagcgca catacaagaa ggaaagaaag aaagtgggtgc aaaagcaaac tgtgctagca 660
ccacttaata gtttgtgcac acgtgttctg aaaattgctg gcaataaaaa tatccccgtt 720
gagatgattg gcaacaagaa ggcgagacat acactcacct tcaagagggt taggggatat 780

15872.018 Sequence Listing (23.8.2006).ST25.txt

tttgttgga	aagtgtcagt	tgcgcatgaa	gaaggacgaa	tgcggcatac	tgagatgtcg	840
tatgagcaat	ttaaattgat	tctaaaagcc	atttgtcagg	tcaccatac	agagcgaatt	900
cgtgaggaag	atattaaacc	aggctgtagt	gggtgggtgt	taggcactaa	tcatacattg	960
actaaaagat	attcaagatt	gccacatttg	gtgattcgag	gtagagacga	cgacgggatt	1020
gtgaacgcgc	tggaaccggt	gttgttttat	agcgaagttg	accactattc	gtcgcaaccg	1080
gaagttcagt	tcttccaagg	atggcgacga	atgtttgaca	agcttaggcc	cagcccagat	1140
catgtgtgca	aagttgacta	caacaacgag	gaatgtggtg	agtttagcagc	aaccttttgt	1200
caggctctat	tcccagtagt	gaaactatcg	tgccaaacat	gcagagaaaa	acttagtaga	1260
gttagctttg	aggaatttaa	agattctttg	aatgcaaact	ttactattca	taaagatgaa	1320
tgggataatt	tcaaggaggg	ctctcagtag	gacaatattt	tcaaattaat	taaagtggca	1380
acacaggcaa	ctcagaatct	caagctctca	tctgaagtca	tgaagttagt	tcagaacccat	1440
acaagcactc	acatgaagca	aatacaagat	atcaacaagg	cgctcatgaa	aggttcattg	1500
gttacgcaag	acgaattgga	cttggtcttg	aaacagcttc	tagaaatgac	tcagtgggtt	1560
aggaaccaca	tgcacctgac	tggtgaagaa	gcgttgaaga	tgttcagaaa	caagcgctct	1620
agcaaggcta	tgataaatcc	tagcctttta	tgtgataacc	aattggacaa	gaatggaaat	1680
tttgtctggg	gggaaagagg	gtatcattcc	aagcgattat	tcaagaactt	ctttgaggaa	1740
gtaataccaa	gtgaaggata	tacgaaatac	gtagtgcgaa	actttccaaa	tggtactcgt	1800
aagttggcca	taggctcttt	gattgtacca	ctcaacttgg	atagggcacg	cactgcactt	1860
cttgagagaga	gtattgagaa	gaagccgctc	acatcagcat	gtgtctccaa	acagaatgga	1920
aattatatac	actcatgctg	ctgcgtaacg	atggatgatg	gaaccccgat	gtactcagaa	1980
cttaagagcc	caacgaagag	gcacctagtt	ataggagctt	ctggtgatcc	aaagtacatt	2040
gatttaccag	catctgaggc	agaacgcatg	tatatagcaa	aggaaggtta	ttgctatctt	2100
aacattttcc	tcgcaatgct	tgtgaatggt	aacgagaacg	aggcaaagga	tttcactaaa	2160
atgattcgtg	atgttttgat	ccctatgctt	gggcaatggc	cttcgttgat	ggatggttga	2220
actgcagcat	acattctagg	tgtattccat	cctgaaacac	gatgtgctga	attacctagg	2280
attcttggtg	atcaccgtac	gcaaaccatg	catgtcattg	attcatatgg	atcattaact	2340
gttggttatc	acgtgctcaa	ggccggaact	gtcaatcatt	taattcaatt	cgcctcaaat	2400
gatctacaga	gcgagatgaa	gcattacaga	gttggcggaa	caccaacaca	gcgcatcaaa	2460
cttgaggagc	agttgattaa	aggaatcttc	aaaccaaacc	ttatgatgca	gctcctgcac	2520
gatgatccat	acatattatt	gcttggcatg	atctcaccta	ccattcttgt	acacatgtat	2580
aggatgcgtc	attttgagcg	aggatttgaa	atatggatta	agagagatca	tgaaattgga	2640

15872.018 Sequence Listing (23.8.2006).ST25.txt

aagatttttcg	tcatattgga	acagctcaca	cggaaggttg	ctctggctga	agttcttgtg	2700
gatcagctcg	atttgataag	cgaagcttca	ccacatttac	ttgaaatcat	gaagggttgt	2760
caagataatc	aaagagcgta	tgtacctgcg	ctggatttac	taacgataca	agtagagcgt	2820
gagttttcaa	acaaggaact	taaaaccaat	ggctatccag	atttgcagca	aacgttgttt	2880
gatatgagag	aaaaaatgta	tgcaaagcaa	ttgcacaatg	catggcaaga	gctaagcttg	2940
ctggaaaaat	cttgtgtaac	cgtgcgattg	aagcaattct	cgatttttac	ggaaagaaat	3000
ttaatccagc	gagcaaaaga	aggaaagcgc	acatcttcgc	tacaatttgt	tcacgagtgc	3060
tttatcacga	cccgagtaca	tgcgaagagc	attcgcgatg	caggcgtgcg	caagctaaat	3120
gaggctctcg	ttggtacttg	taagtctttt	ttctcttgtg	gtttcaagat	ttttgcgcga	3180
tgctacagcg	acattatata	ccttgtgaac	gtgtgtttgg	tattctcctt	ggtattacaa	3240
atgtctaata	ctgtacgcaa	catgatagcg	gcgacaaggg	aagaaaaaga	gagagcgatg	3300
gcaaataagg	ctgatgaaaa	tgaaaggacg	ttaatgcaca	tgtaccacat	tttcagtaag	3360
aagcaggatg	aagcgcccat	atacaacgac	tttcttgagc	atgttcgcaa	tgtgagacca	3420
gatcttgagg	aaaccctctt	atacatggct	ggtgcagagg	ttgtagcaac	acaggccaag	3480
tcagcggttc	agattcagtt	cgagaagatt	atagctgtat	tggcgtgct	cactatgtgc	3540
tttgacgccg	aaagaagcga	cgccattttc	aagattttga	caaagctcaa	aacagttttt	3600
ggcacggttg	gagaaacggt	ccgacttcaa	ggacttgaag	atattgagag	cttggaggac	3660
gataagagac	tcacaattga	ctttgatatt	aacacgaatg	aggctcagtc	gtcgacaacg	3720
tttgatgttc	attttgatga	ttggtggaat	cggcagctgc	agcaaaatcg	cacagttcca	3780
cattacagga	ccacaggtaa	attcctcgaa	tttaccagaa	acactgcagc	ttttgtggcc	3840
aatgaaatag	catcatcaag	tgaaggagag	tttttagtca	gaggagcagt	gggttctgga	3900
aaatcaacga	gcttgcccgc	acatcttgcc	aagaagggta	aggtactggt	acttgaacct	3960
acacgcccct	tggcggagaa	tgtcagtaga	cagttggcag	gcgatccttt	tttccaaaac	4020
gtcacactca	gaatgagagg	gctaaattgc	tttggttcaa	gtaacattac	agtgatgacg	4080
agtggaattg	cttttcacta	ttatgttaac	aatccacatc	aattaatgga	atttgacttt	4140
gttataatag	acgagtgcc	tgtcacggac	agtgcgacta	tagctttcaa	ttgtgcgctt	4200
aaggagtata	actttgctgg	caaattgatt	aaagtgtctg	caacgccgcc	agggagagag	4260
tgtgatttcg	atacgcaatt	cgcgggttaa	gtcaaaacgg	aggaccacct	ttcattccat	4320
gcattcgttg	gcgcacagaa	gaccggttca	aatgctgaca	tggttcagca	tggcaataac	4380
atacttgtgt	atgttgcaag	ttacaacgaa	gtggacatgc	tttccaagtt	actcactgag	4440
cgacaatttt	cagtgcgaa	ggtagatggg	cgaacaatgc	aacttgggaa	aactaccatt	4500
gaaacgcatg	gaactagcca	aaagcctcat	ttcatagtag	ctagaaacat	catcgaaaat	4560

15872.018 Sequence Listing (23.8.2006).ST25.txt

ggagtgacgt	tggatgttga	gtgtgtttgtt	gatttttgac	tgaaagtgg	cgcagaatta	4620
gacagcga	atcgggtgt	gcgctacaac	aagaaatcag	ttagttatgg	ggaaaggatt	4680
cagcggctag	ggagagtggg	gagatctaag	cctggaacgg	cattgcgtat	agggcacaca	4740
gaaaaaggca	tcgagagcat	tcctgaattc	attgccacag	aagcagcagc	cctatcgttt	4800
gcctatgggc	ttccagtcac	tacgcatggg	gtttccacaa	atatactcgg	aaagtgcaca	4860
gtcaagcaga	tgagatgtgc	tttgaatttc	gagctaactc	ctttcttcac	cactcatcta	4920
atccgtcatg	atggcagtat	gcacccattg	atacacgaag	aattaaaaca	attcaaactc	4980
agggattcag	aaatgggtgct	caacaagggt	gcattacctc	accaatttgt	gagtcaatgg	5040
atggatcaaa	gtgagtatga	acgcattgga	gtgcacgttc	aatgtcatga	gagcacacgc	5100
atacctttct	acacaaatgg	agtgcctgac	aaggtctatg	agaaaatttg	gaagtgcata	5160
caagaaaaca	agaatgatgc	ggttttttggt	aagctctcaa	gcgcttggtc	gactaagggtc	5220
agttatacac	tcagcactga	cccagcagca	ttaccagaa	ccattgcaat	catcgaccac	5280
ctgcttgccg	aggaaatgat	gaagcggaat	cacttcgaca	cgattagctc	agctgtgacg	5340
ggttattcat	tttccctcgc	tggaattgct	gattctttta	ggaagagata	catgcgtgat	5400
tacacagcgc	acaacattgc	aattcttcaa	caagcacgtg	cccagctgct	cgagttcaat	5460
agcaaaaatg	tgaacatcaa	caacctgtcc	gatctggaag	gaattggagt	tattaagtcg	5520
gtggtgttgc	aaagtaaaca	agaggtcagc	aacttcttag	gacttcgcgg	taaatgggat	5580
ggacggaaat	ttgcgaacga	tgtgatattg	gcgattatga	cactcttagg	aggtggatgg	5640
ttcatgtggg	aatacttcac	gaaaaagatc	aatgaacctg	tgcgcgttga	aagcaagaaa	5700
cggcgatctc	aaaagttgaa	attcagggat	gcatacgata	ggaaggtcgg	acgtgagatc	5760
tttggcgatg	atgacacaat	tgggcgcact	tttggcgaag	cttacacgaa	gagaggaaag	5820
gtcaaaggaa	acaacagcac	aaaagggaatg	ggacggaaaa	ctcgcaattt	tgtgcattta	5880
tatggtgtgg	agcctgagaa	ttacagcttc	atcagatttg	tggaccctct	cactggccat	5940
acattggacg	aaagcaccca	tacagacata	tcgttagtgc	aggaggagtt	tggaaatatt	6000
agagagaaat	ttctggagaa	tgatttgatc	tcaaggcagt	ctattatcaa	caaaccgggt	6060
attcaggcat	attttatggg	caagggcact	gaagaagcac	tcaaagttga	tttgactcct	6120
catgtaccat	tgcttctgtg	caaaaacacc	aatgccattg	cgggataccc	agagagagaa	6180
aatgagctga	gacaaactgg	cacaccagtc	aaggtttctt	ttaaagacgt	gccagagaaa	6240
aacgaacatg	tcgagttgga	gagcaaatacc	atctacaaag	gagtgcgcga	ttataatggc	6300
atctcaacaa	tcgtctgtca	attaacgaat	gattctgatg	gcctcaagga	gactatgtat	6360
ggatttggct	atgggccgat	aatcatcact	aatggacacc	tcttcaggaa	aaacaatggc	6420

15872.018 Sequence Listing (23.8.2006).ST25.txt

acacttctag	tcaggtcttg	gcatggtgaa	ttcactgtaa	aaaataccac	aacgctcaaa	6480
gtgcatttca	tagaaggaaa	ggatgttggt	ttagtgcgta	tgccaaagga	ctttccaccg	6540
tttaaaagca	acgcttcttt	tagggcacca	aagcgcgagg	aacgagcatg	tttggttgga	6600
acgaattttc	aagagaagag	tctccgctcc	actgtttcag	aatcttccat	gacaatacct	6660
gaaggaactg	gctcatattg	gattcactgg	atttcgacca	acgaagggga	ttgcggatta	6720
cccatggttt	caacaacgga	tggcaagata	attggagttc	atggtttggc	ttccacggtc	6780
tcatccaaga	attattttgt	cccatttact	gatgatttta	tagccacgca	tttgagcaag	6840
cttgacgatc	tcacatggac	tcaacattgg	ctatggcaac	ctagtaaaat	cgcggtggggc	6900
acgcttaact	tagttgatga	acaaccaggg	cctgaatttc	gtatttcaaa	tctagtaaag	6960
gatttggttca	cttctggtgt	tgaaacacag	agcaagcgag	aaagatgggt	ctacgaaagc	7020
tgtgaagggga	accttcgagc	tgttggaact	gcacaatcag	cgctagtcac	caaacatggt	7080
gtaaaaggca	agtgtccttt	cttcgaagaa	tacttgcaaa	ctcacgcaga	agcgagcgct	7140
tacttcagac	ccttgatggg	agaataccag	cctagcaagt	tgaacaaaga	ggccttttaa	7200
aaggatttct	tcaaatacaa	taaaccgctc	actgttaatc	aattggatca	cgataaattc	7260
ttggaagcag	ttgatggggg	tatacgtatg	atgtgcgact	ttgaattcaa	tgagtgccga	7320
ttcattacag	accccgagga	aattttatac	tctttgaaca	tgaagcagc	aattggagcc	7380
cagtatagag	gaaagaagaa	agagtatttt	gaagggctag	atgattttga	tcgagagcga	7440
cttttatttc	agagttgtga	aaggttgttt	aatggctaca	aaggctctgt	gaatggatct	7500
ttaaaggccg	agctcaggcc	gcttgagaaa	gtcagggcca	acaaaacacg	aactttttaca	7560
gcagcgccca	ttgatacatt	gctcggagct	aaagtttgcg	tgatgatttt	caataatgaa	7620
ttttatagca	aaaacctcaa	gtgtccatgg	acggttggca	tgacgaaatt	ttatggtggt	7680
tgggatagat	tgatgagatc	attacctgat	ggttgggttat	attgtcatgc	tgatggatca	7740
cagtttgaca	gttcattgac	cccagcctta	ctgaatgcag	tgcttataat	ccgatcattt	7800
tatatggagg	attggtgggt	cgggtcaagag	atgcttgaaa	atctttatgc	tgagattgtg	7860
tacactccaa	ttcttgctcc	ggatggaaca	attttcaaga	aatttagagg	taacaacagt	7920
gggcaaccct	caacagtggg	ggataacaca	ctaattggtt	tgatctctat	ttactatgcg	7980
tgcatgaaat	ttggttgga	ttgcgaggaa	attgagaata	gacttatctt	ctttgcaa	8040
ggagatgatc	tgatacttgc	agtcaaagat	gaggatagcg	gcttacttga	taacatgtca	8100
gcttcttttt	ccgaactcgg	actgaattat	gattttttcag	aacgcacgca	caaaagagaa	8160
gatctttggt	tcatgtccca	ccaagcaatg	ttagttgatg	gaatgtacat	tccaaaactc	8220
gagaaagaaa	gaattgtttc	aattctagag	tgggatagaa	gcaaagaaat	catgcaccga	8280
acagaggcta	tttgcgctgc	gatgattgag	gcatgggggc	acaccgagct	tttgcaagaa	8340

15872.018 Sequence Listing (23.8.2006).ST25.txt

atcagaaagt tttacctatg gttcgttgag aaagaggaag tgcgagaatt agctgccctc	8400
ggaaaagctc catacatagc tgagacagca cttcgcaagt tatatactga caaaggagcg	8460
gaaacaagtg aattggcacg ctacctacaa gccctccatc aagatatctt ctttgaacaa	8520
ggagacaccg taatgctcca atcaggcact cagccaactg cggcagacgc tggggccaca	8580
aagaaagaca aagaggatga caaagggaaa aacaaggatg ttacaggctc cggctcaggt	8640
gagaagacag tagcagctgt cacgaaggac aaggatgtga acgctggttc tcatgggaaa	8700
attgtgccgc gtctttcgaa gatcacaag aagatgtcac tgccacgcgt gaaaggaaaa	8760
gtcatactcg atatcgatca tttgctggaa tataagccgg atcaaattga gttgtataac	8820
acacgagcgt ctcatcagca attttcctcc tggtttaatc aagttagaac agaatatgat	8880
ttgaatgagc aacagatggg agttgtaatg aatggtttca tggtttggtg cattgaaaat	8940
ggcacttcgc ctgatatcaa tggagtgtgg ttcattgatg atggagatga gcaggtcgag	9000
tatcctttga aaccaatagt cgaaaatgca aagccaacgc tgcgacaaat aatgcatcac	9060
ttctcagatg cagcggaggc atacatagaa atgagaaatg cagaggcacc atacatgccg	9120
aggtatgggt tgcttcgaaa tctacgggat aggagtgttg ctcgatacgc tttcgacttc	9180
tacgaagtca actctaaaac tcctgaaaga gcccgcgaag ctgttgcgca gatgaaagca	9240
gcagctctta gcaatgtttc ttcaagggtg tttggccttg atggaaatgt tgccaccact	9300
agcgaagaca ctgaacggca cactgcacgt gatgttaata gaaacatgca caccctgtta	9360
ggtgtgaaca caatgcagta aagggtaggt cacctaccta ggttatcgat tcgctgccga	9420
cgtaattcta atatttaccg ctttttatga tatctttaga tttcagtgtg ggcctcccac	9480
ctttaagcg taaagtttat gttagttgtc caggaatgcc gtagtcctgt cggaagcttt	9540
agtgtgagcc tctcacggat aagctcgaga ttagactccg tttgcaagcc t	9591

<210> 10
 <211> 37
 <212> DNA
 <213> Artificial sequence

<220>
 <223> single strand DNA oligonucleotide

<400> 10	
atggatccct gcagtcaggc actcagccaa ctgtggc	37

<210> 11
 <211> 32
 <212> DNA
 <213> Artificial sequence

<220>
 <223> single strand DNA oligonucleotide

15872.018 Sequence Listing (23.8.2006).ST25.txt

<400> 11		
atggcgccgg taccaggctt gcaaacggag tc		32
<210> 12		
<211> 18		
<212> DNA		
<213> Artificial sequence		
<220>		
<223> single strand DNA oligonucleotide		
<400> 12		
gctacggagc gtccgcgg		18
<210> 13		
<211> 20		
<212> DNA		
<213> Artificial sequence		
<220>		
<223> single strand DNA oligonucleotide		
<400> 13		
cgcggtcgac tgtatgtcat		20
<210> 14		
<211> 20		
<212> DNA		
<213> Artificial sequence		
<220>		
<223> single strand DNA oligonucleotide		
<400> 14		
tctgaccaga ctaccgaaaa		20
<210> 15		
<211> 20		
<212> DNA		
<213> Artificial sequence		
<220>		
<223> single strand DNA oligonucleotide		
<400> 15		
atggcttaca atccgatcac		20
<210> 16		
<211> 30		
<212> DNA		
<213> Artificial sequence		
<220>		
<223> single strand DNA oligonucleotide		
<400> 16		
gagaggatcc atgtttctaa gtcaggtcct		30

15872.018 Sequence Listing (23.8.2006).ST25.txt

```

<210> 17
<211> 31
<212> DNA
<213> Artificial sequence

<220>
<223> single strand DNA oligonucleotide

<400> 17
gagagaattc tcactttgag gaagtagcgc t
31

<210> 18
<211> 18
<212> DNA
<213> Artificial sequence

<220>
<223> single strand DNA oligonucleotide

<400> 18
tctatcgctt aacgcagc
18

<210> 19
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> single strand DNA oligonucleotide

<400> 19
atgtcttact ctacttctgg
20

<210> 20
<211> 19
<212> DNA
<213> Artificial sequence

<220>
<223> single strand DNA oligonucleotide

<400> 20
caagacgagg tagacgaac
19

<210> 21
<211> 19
<212> DNA
<213> Artificial sequence

<220>
<223> single strand DNA oligonucleotide

<400> 21
atgccttact ctaccagcg
19

```